

trough bicuspid and curved posteriorly; a small flattened ovate sclerite attached to anterior surface of sac near base.

The species differs from nearctic *Homoneura* mainly in the plumosity of the arista, in the six rows of acrostical hairs, and in the structure of the aedeagus. In most nearctic species, the arista is bare to short-pubescent. *H. philadelphica* (Macq.), the only nearctic species in which the plumosity of the arista approaches in length that of *uniguiculata*, has the wing spotted. Nearctic species have two to four rows of usually sparse acrostical hairs, the inner two rows being often bristle-like. A few species with distinctly brown-marked wings have four rows of rather numerous hairs. The aedeagus is unlike that of any nearctic *Homoneura* known to me.

TEN NEW CHRYSOMELID BEETLES FROM THE WEST INDIES AND KEY WEST

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In this paper are described eight new species and two new subspecies of Chrysomelid beetles. Five of these are from Jamaica, mostly collected by Dr. T. H. Farr. The rest are with one exception from other West Indian islands, some collected by Dr. P. J. Darlington, Jr., and one, a new species of *Exoceras*, was collected on Dominica by Dr. O. S. Flint. The two subspecies are of Cassids (one of which was taken on Key West, Florida), with which relatives from other West Indian islands are compared.

Chalcosicya farri, n. sp. (Fig. 6)

About 2.5 mm. in length, ovate, shining, strongly punctate with scattered short, white, closely appressed hairs; bronzy black with reddish brown antennae; tibiae and tarsi darker reddish brown, all femora toothed.

Head with rounded occiput and a short median depression in middle of front; surface finely punctate and alutaceous with short white hairs; mouthparts reddish brown. Antennae extending below humeri, reddish brown, 7th joint long, outer joints a bit wider than joints 3 to 6. Prothorax widest at base, moderately convex, rather alutaceous but somewhat shiny, with fine and not dense punctation, and with short white hairs. Scutellum rounded, shining, black. Elytra convex with small humeri and a small basal callosity having a depression below; punctation coarser than on prothorax, but on basal callosities not so coarse and becoming finer towards apex and at apex somewhat ridged; short white hairs more abundant along sides and at apex and in depression below basal callosities.



1 *Metachroma longipunctatum* n.sp.



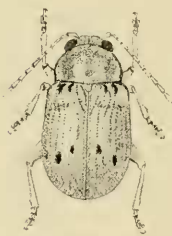
2 *Exoceras flinti* n.sp.



3 *Metachroma maniocae* n.sp.



4 *Metachroma longicorne* n.sp.



5 *Metachroma ashlanoe* n.sp.



6 *Chalcosicya farri* n.sp.



7 *Metriona praevista* (Boh.)



8 *Metriona 4-signata jamaicensis* n.sp.



9 *M. 4-signata* (Boh.)



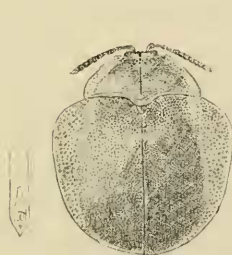
10 *Eurypepla calochroma* (Blak.)



11 *Eurypepla jamaicensis* (L.)



12 *Ecalochroma floridensis* n.sp.



13 *Stoiba fuscicornis* n.sp.



14 *Stoiba swartzii* (Thunb.)



15 *Stoiba vafa* n.sp.

db

Body beneath with rather scanty white pubescence; all femora with small tooth, tibiae curved, tibiae and tarsi reddish brown. Length 2.5–2.7 mm.; width 1.5 mm.

Type USNM No. 68194. One paratype in Institute of Jamaica.

Type locality.—Clydesdale to Morces Gap, St. Andrew Parish, Jamaica, collected 22 July 1958, T. H. Farr. One paratype taken at Morces Gap, St. Andrew Parish, 8 August 1959, T. H. Farr.

Remarks.—This is the first species of the genus to be collected in Jamaica. It is about the same size and shape as *C. rotunda* Blake from Pico Turquino, Sierra Maestra, Cuba, but differs from that small species in having shorter pubescence and in having all femora toothed as in most of the genus. *C. nana* (Suffrian), another small species, also from Cuba, has denser and longer white pubescence.

***Metachroma ashtonae*, new species**

(Fig. 5)

About 2.5 mm. in length, oblong oval, shining, yellow brown with a faint reddish brown M-shaped marking on prothorax and two small spots at base and two small spots below the middle of each elytron, prothorax finely and moderately densely punctate, elytra with distinct striate punctation becoming fainter near apex, a well-marked transverse depression below basal callosities.

Head with interocular space barely half width of head, the usual groove about eyes and a median transverse groove separating lower from upper front, a median line down occiput; finely punctate above and more coarsely punctate in lower front. Antennae and mouthparts yellowish. Antennae extending below humeri, basal joint swollen, outer joints a little thicker. Prothorax with rounded lateral sides and small tooth at basal and apical angles, disc not very convex, somewhat alutaceous and densely and distinctly punctate; a faint M-shaped deeper brown marking. Scutellum reddish brown. Elytra yellowish brown with two elongate basal spots, the one in humeral sulcus wider than median basal spot; below middle two more dark spots, the higher one nearer suture; striate punctation deep and distinct to below middle, then becoming finer and shallower, below humeri on side the intervals between striate punctures somewhat costate; a distinct transverse depression from below humeri nearly to suture. Body beneath yellowish brown, anterior and posterior femora somewhat swollen and without tooth, middle and hind tibiae emarginate near apex. Length 2.6 mm.; width 1.7 mm.

Type, female, USNM. No. 68199.

Type locality.—Christiana, Manchester Parish, Jamaica, W.I., collected by T. H. Farr, 4 Nov. 1959.

Remarks.—This tiny species is only a little larger than *M. elachistum* Blake from Cuba. Unlike that species it is a paler yellow brown with indeterminate brownish shadings on the prothorax and more distinct darker spots on the elytra. I take pleasure in naming it for Mary

Ashton, a dedicated biology teacher of Jamaica's dark children for some years.

***Metachroma maniocae*, n. sp.**

(Fig. 3)

About 3.5 mm. in length, oblong oval, shining, pronotum very finely punctate, elytra with small striate punctures becoming faint over basal callosities, towards apex and on sides, yellow brown, head with a broad dark plaga, pronotum usually with a more or less definite dark transverse area, elytra with dark streak down intrahumeral sulcus ending in a rounded dark spot, often connected with a marginal dark streak, another spot below this on side; antennae with apical joints dark.

Head with interocular space half width of head, a broad median dark area stretching down occiput to frontal tubercles, upper head shining and with scattered punctures, lower front more alutaceous, with denser and coarser punctures, antennae extending below humeri, basal joints pale, outer ones thicker and darker. Prothorax with widely curving sides, moderately convex, polished and with very fine, not dense, punctation, pale yellow brown with a broad dark fascia. Scutellum dark. Elytra with small striate punctures fading out over basal callosities, sides and apex, surface very shiny, pale yellow with a narrow dark streak down intrahumeral sulcus, ending in a broad spot, often connected with a marginal dark area, below this on the side another spot, this one sometimes faint or even lacking. Body beneath sometimes dark reddish brown, in paler specimens yellowish brown, legs with a slight darkening at base of tibiae, tibiae of middle and hind legs emarginate near apex. Length 3.5-3.8 mm.; width 1.9-2 mm.

Type, male and 12 paratypes, USNM No. 68198.

Type locality.—Cuba.

Other localities.—Soledad, Cienfuegos, Cuba, collected by P. J. Darlington, Jr., May 1936, and by George Salt, May 1925; Jovellanos, Matanzas Prov., Cuba, E. V. Echemendia, 10 May 1941, attacking manihot.

Remarks.—There is little variation in the markings of the specimens examined, but some darker ones have larger elytral dark spots, and in one pale specimen, the lower dark spot was missing.

***Metachroma longicorne*, n. sp.**

(Fig. 4)

Approximately 3 mm. in length, ovate, polished yellow brown, pronotum with a dark fascia, elytra with four small spots on each, a spot on humerus, one below this on side in transverse depression, a third spot on side halfway down, and a fourth below this and near suture; elytra with striate punctation only in transverse depression and near suture.

Head with interocular space half width of head, occiput deep reddish brown, polished, finely punctate, lower part of front paler brown, alutaceous and obsoletely punctate. Antennae slender, extending to middle of elytra, pale yellow

brown. Prothorax approximately twice as wide as long with rounded sides and small tooth at apical and basal angles, surface lustrous, finely and not densely punctate, yellowish brown with deeper brown verging on piceous transverse markings. Scutellum yellowish brown. Elytra broader than prothorax with small but well-marked humeri and transverse depression below basal callosities in which striate punctation is visible, otherwise, except along suture punctation very indistinct; surface polished, yellow brown with four small piceous spots on each elytron, one on humerus, one below in basal depression, another along side at middle and a fourth near suture in apical half. Body beneath and legs yellowish brown, middle and hind tibiae with the usual emargination near apex. Length 2.8 mm.; width 1.6 mm.

Type, female, Museum of Comparative Zoology No. 31195.

Type locality.—Soledad, Cienfuegos, Cuba, collected 22 Nov. 1936 by P. J. Darlington, Jr.

Remarks.—The pattern of the elytral spotting and unusually long antennae distinguish this from other small yellow brown species.

***Metachroma longipunctatum*, n. sp.**

(Fig. 1)

About 3 mm. in length, oblong oval, shining, head and prothorax deep reddish brown, elytra, legs and antennae paler yellowish brown, pronotum somewhat rugose with elongate punctures, elytra with transverse depression below basal callosities, and clearly marked and rather coarse striate punctures.

Head with interocular space approximately half width of head, a median depression and the usual groove about eyes, alutaceous, not at all shiny, dark reddish brown. Antennae yellow brown, extending below humeri, outer joints a little wider. Prothorax rather flat, with well-rounded sides and tooth at basal angle, shiny, deep reddish brown, with distinctly elongate punctures; surface becoming somewhat rugose in basal part. Scutellum reddish brown. Elytra shining, yellowish brown, paler than prothorax, punctures distinct and striate, larger in transverse groove below basal callosities, becoming fainter towards apex. Body beneath reddish brown, legs paler, femora not toothed, middle and hind tibiae as usual emarginate near apex. Length 2.3 mm.; width 1.1 mm.

Type, male, Museum of Comparative Zoology No. 31196.

Type locality.—La Visite and vicinity, La Salle Range, 5–7000 ft. alt., Haiti, 16–23 Sept. 1934, P. J. Darlington, Jr.

Remarks.—This is one of the smaller species of *Metachroma*, comparable in size with *M. elachistum*, Blake from Cuba. The conspicuously elongate punctures on the pronotum distinguish it from other small West Indian species.

***Exoceras flinti*, n. sp.**

(Fig. 2)

Between 3 and 3.5 mm. in length, elongate oblong, a basal sulcus across pronotum, elytral punctation striate, at base well-developed basal callosities, with a

transverse depression below, apex pinched in; yellow brown, shining, last 5 joints of antennae usually darker brown.

Head long, with pronouncedly swollen frontal tubercles and no carina down the long flat lower face, eyes small. Antennae not extending much below the humeri, basal joints shining yellow brown, apical five darker, wider and pubescent. Prothorax with slightly curved sides, oblique angles anteriorly, and deep basal sulcus across entire pronotum; polished yellow brown, impunctate. Scutellum yellow brown. Elytra at apex pinched in, humeri well developed and a basal callosity on each elytron over which striate punctures not very strong, becoming more distinct in basal depression below, but fading towards apex; shining yellow brown. Body beneath entirely yellow brown except claw joint which is deeper brown, claws large, a spur at end of hind tibiae, hind femora enlarged. Length 3–3.5 mm.; width 1.5–1.9 mm.

Type, male, and 6 paratypes, USNM. No. 68323.

Type locality.—Freshwater Lake, Dominica, April 14, 1964, collected by O. S. Flint.

Remarks.—This is the largest species of *Exoceras* found up to now in the West Indies, approaching in size the Central American species, *E. facialis* Jacoby. It lacks the frontal development in the form of two appendages in the lower front of that species, and has much shorter antennae. The characteristic long face, long first antennal joint, basal sulcus across the pronotum and striate elytra all place it in the genus *Exoceras*. The narrowed apex to the elytra is another unusual character for the species. Dr. O. S. Flint states that he collected these beetles by sweeping vegetation that was composed mainly of ferns, and particularly climbing fern.

***Stoiba rufa*, n. sp.**

(Fig. 15)

About 8 mm. in length, rotund, not very shiny, elytra alutaceous and finely punctate, reddish brown with pale yellow antennae and yellow brown head and underparts.

Head yellowish brown with interocular space half the width of head, a deep cut median line down between frontal tubercles which are alutaceous; lower front short, mouthparts declivous. Antennae pale yellow, not extending to humeri, joints three and four long and equal, fifth joint shorter and wider, sixth joint still shorter and succeeding joints no longer but gradually widening to apex. Prothorax reddish brown, curving widely from behind eyes to base, basal margin deeply sinuate over scutellum; disc not very convex with a depression in middle at base, and with a wide margin too thick to be transparent hyaline and with coarse punctures along it. Scutellum dark brown. Elytra reddish brown, alutaceous, not shiny, with distinct but not coarse punctures, moderately convex, with a well-rounded hump below scutellum, explanate margin on sides too thick to be hyaline, widest somewhat below humeri and before middle. Body beneath yellowish brown, legs short, claws simple. Length 7.5–8 mm.; width 6.5 mm.

Type, USNM. No. 68195, 2 paratypes, one of which in the Institute of Jamaica, Kingston, Jamaica.

Type locality.—14½ miles east of Kingston, Jamaica, Morant Bay Road, St. Thomas Parish, 6 Sept. 1964, T. H. Farr.

Other localities.—Lighthouse, Portland Ridge, 2 Dec. 1949, R. P. Bengry, Corn Puss Gap, St. Thomas Parish, Aug. 1941, C. B. Lewis.

Remarks.—This is closely related to *Stoiba swartzi* (Thunb.), the only other species of *Stoiba* heretofore described from Jamaica. *S. swartzi* has deep purple blue or even deep reddish blue elytra, and has a broader appearance and all the specimens that I have seen are larger. *S. rufa* is less rotund, of a narrower appearance and in coloring the elytra are reddish, with at times a faint purple lustre. *Stoiba swartzi* has been collected at Cinchona, Dolphin Head, and Windsor Estate, all localities in the middle or northern part of Jamaica, whereas *S. rufa* has been collected mostly along the southern coastal area. T. H. Farr has collected it twice on the Morant Bay Road, once on 6 Sept. 1964, and once on the 21 July 1963.

***Stoiba fuscicornis*, n. sp.**

(Fig. 13)

About 8 mm. in length, rotund, pronotum somewhat shiny, with a few coarse punctures about sides, elytra alutaceous, not at all shiny, with moderately dense punctation, not so dense on explanate sides, leathery brown, with head, pronotum and undersurface a little lighter yellowish brown, antennae dark.

Head with interocular space half width of head, punctate on occiput about eyes, a dark depressed median line, very short lower front with mouthparts declivous. Antennae not extending to humeri, dark yellowish brown, joints 3 and 4 relatively long, 5th joint short and wide, succeeding joints becoming gradually wider but not longer. Prothorax with sides widely explanate and curving out from behind eyes and broadening to basal margin which is deeply sinuate over scutellum; surface somewhat shiny in some specimens, dull alutaceous in others, yellowish brown with an indefinite slightly darker brown area about sides and in middle, a depression over scutellum, coarse punctures on explanate sides and finer ones on disc. Scutellum brown. Elytra darker and more leathery brown than pronotum and not at all shiny, alutaceous with coarse, dense, often dark punctures, on the explanate margin becoming large rounded transparent spots, disc moderately convex behind scutellum in a rounded hump; humeri well marked. Body beneath yellowish brown, tibiae and tarsi with piceous shadings, claws simple, large. Length 8–8.5 mm.; width 7.2–8 mm.

Type, male, USNM. Type No. 68196, and 9 paratypes, of which 5 are in the Institute of Jamaica, Kingston, Jamaica.

Type locality.—Jamaica, collected in August 1941, by L. V. Burns.

Remarks.—The dull alutaceous leathery brown elytra, together with the dark yellowish brown antennae distinguish this from *S. swartzi* and *S. rufa* which are more shining and which have the pale yellow antennae found usually in species of *Stoiba*.

***Metriona quadrisignata jamaicensis*, n. ssp.**

(Figs. 7, 8, 9.)

Between 4 and 5 mm. in length, rotund, shining, prothorax in life golden with violet tints, elytra golden green, punctures deep blue and on sides slightly deeper and more bluish, explanate margin golden, in dried specimens beetle yellow brown, elytra with a milky overlying piceous marking from near base along side, widening behind the middle, this faint dark marking sometimes nearly vanishing, antennae yellow with tip of apical joint brown; elytra moderately convex with wide explanate margin and with remotely spaced striate punctures.

Head covered by explanate margin but somewhat visible from above through this hyaline margin; eyes large, elongate and closely set, lower front short and declivous, entirely pale. Antennae extending to humeri, apical five joints wider than basal, about as wide as long, tip of apical joint dark. Prothorax with wide explanate margin slightly curved over front in a wide arc, disc only slightly convex, basal margin sinuate over scutellum, in life golden with lavender tints, in dried specimens yellowish brown. Scutellum yellowish brown. Elytra with wide explanate margin protruding forward along side of pronotum, disc roundly humped behind scutellum and with prominent humeri; surface not very coarsely or densely striate punctate, punctures appearing dark blue in fresh specimens on a brassy or golden green surface, explanate margin golden green, the dark elytra markings along side not so apparent when alive but becoming darker in dried specimens. Body beneath yellow brown, legs short, claws large, simple. Length 4–4.8 mm.; width 4.2 mm.

Type. USNM. Type No. 68197, and one paratype.

Type locality.—Portland Cottage, Clarendon Parish, on *Jaquemontia pentantha*, T. H. Farr, collector.

Other localities.—Lucea, Hanover Parish, 15 July 1959, Grand Cayman, Cayman Is., 24 Feb. 1962, C. B. Lewis, P. Rice.

Remarks.—Dr. Farr writes that the beetle when alive is "bright greenish blue and orange, the pronotum, scutellum and explanate areas golden. In certain lights the beetle appears brassy green in colour, in others grayish blue with a pearl like lustre."

This is undoubtedly the Jamaican race of *Metriona quadrisignata* (Boh.) which as the name indicates is a 4-spotted beetle whose habitat Boheman gave as Cuba and St. Domingo. Two pages beyond his description of *quadrisignata* (Boheman, Monographia Cassidarum, vol. 11, 1855, p. 152) Boheman described *Coptocyclus praeusta* from St. Domingo as having a single large posterior olivaceous spot on each elytron. In the U.S. National Museum collection are beetles corresponding to *quadrisignata* from Cuba and there is one from St. Domingo with similar markings. There are also from St. Domingo some with a single large apical spot on each elytron as in *praeusta* and in the same series are a few with spots coalescing as in the specimens from Jamaica. In general these St. Domingo specimens are smaller than the typical *quadrisignata*. There are 4-spotted specimens also

from Puerto Rico. It would appear that this is a species with variable markings occurring all through the greater Antilles, that in Cuba and Puerto Rico it is usually 4-spotted, in Hispaniola 2-spotted, and in Jamaica I have seen only specimens with the spots coalescing. In a single specimen from Grand Cayman island the spots are very obscure, almost invisible, and correspond with Boheman's variety *a* in which the spots are "obsolete."

Metriora quadrisignata is not to be confused with another species having similar elytral spotting, *M. bisbinotata* (Boh.) of which I have seen specimens only from Cuba. The position of the elytral spots is a little different, the spot in the anterior half of the elytron being below the humerus and transverse in shape in a depression extending nearly to the margin, while the spot in the posterior half of the elytron is situated nearer the margin on the side.

***Eurypepla calochroma floridensis*, n. ssp.**

(Figs. 10, 11, 12.)

The brief Linnaean description of *Cassida jamaicensis* Linnaeus, (*Systema Naturae*, ed. 10, 1758, 1, p. 364) is of a beetle "luteo-aenea, elytris immaculatis, excavato-punctatis." Thus it is definitely stated that the beetle is not spotted. Specimens corresponding to this immaculate cassid in the U.S. National Museum collection have been collected not only on Jamaica, but also on Puerto Rico and St. Domingo. Boheman, who placed this Linnaean species in the genus *Eurypepla* (Boheman, *Monographia Cassidarum*, vol. 2, 1854, p. 237) described another species, *E. vitrea*, from Cuba, which he stated was much smaller (6½ mm. as contrasted with the 11 mm. of *jamaicensis*) with the prothorax "obsoletely fusco-variegato." I have not seen any specimen like this from Cuba in any collection. On the next page, p. 238, Boheman described a third species, *E. brevilineata*, from Campeche, Yucatan, Mexico, in which there is a small dark median line on the pronotum. The length of this one he gave as 10 mm. Champion in the *Biologia Centrali Americana* has illustrated this and stated that he has seen several specimens. Recently I described a species of *Eurypepla* (*American Museum Novitates*, No. 2217, 1965, p. 12) wrongly ascribing it to the genus *Psalidonota*, from Andros Island, Bahama, and giving it the specific name *calochroma*, in which the pronotum has a large round dark median spot, and also a dark spot on each elytron below the middle near the hyaline margin. Specimens of this species are in the U.S. National Museum collection from Fresh Creek, and also Harbor Island, Bahama. Still another race has been collected at Key West, Florida, on *Cordia*, in which the pronotum is marked by a small median basal spot and often traces of a still smaller brown spot on either side. H. S. Barber in his paper on the North American Tortoise Beetles

(Proc. Ent. Soc. Wash., vol. 18, pp. 113-127. 1916) mentioned the occurrence of this on Key West, and identified the beetle as *Eurypepla jamaicensis* (L.).

As in the case of *Metriona quadrisignata* (Boh.) from Cuba with its close relatives having slightly different elytral spotting in St. Domingo and Jamaica, I believe with this difference in spotting of the pronotum and elytra there is at least a subspecific difference for this Key West, Florida race for which I am proposing the subspecific name *Eurypepla calochroma floridensis*. As in the Bahaman species, *E. calochroma* (Blake), the prothorax is slightly more convex in the middle and the hyaline margin about the front not so rounded as in *E. jamaicensis* (L.). In addition, on the pronotum there is a tiny median basal spot and usually a fainter lateral spot on each side, and also a dark spot in the middle of each elytron, to distinguish it from *E. jamaicensis* as well as typical *E. calochroma*.

Type, and 5 paratypes, USNM. No. 68324, taken on Geiger tree, 16 April 1945.

Type locality.—Key West, Florida.

It has also been collected by E. A. Back on avocado and an unknown tree on Key West, on 15 June 1941, and it has been collected on the tip of the mainland at Homestead, Florida.

VARIATION IN TWO SPECIES OF AMBLYOMMA

(METASTIGMATA: IXODIDAE)¹

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The following examples of unrecorded variation in two species of *Amblyomma* were observed when identifying some ticks at the Bishop Museum.

Amblyomma tuberculatum Marx

One nymph from a lot of three had two spurs on coxa III. The internal spur was smaller than the external spur but nevertheless distinctly evident. It was not as well developed on one coxa where it took the form of a salient ridge joined with the internal margin of the external spur. Coxa II of another nymph had the internal spur represented as a salient ridge. Mr. G. M. Kohls (letter, 28 Oct. 1965) informs me that among about 25 nymphs of this species in the collection

¹ This investigation was supported, in part, by Public Health Service research grant AI-01723 from the National Institute of Allergy and Infectious Disease, National Institutes of Health.